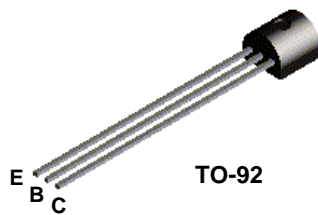


## BCX79



### PNP General Purpose Amplifier

This device is designed for use as general purpose amplifiers and switches requiring collector currents to 300 mA. Sourced from Process 68. See PN200A for characteristics.

#### Absolute Maximum Ratings\* TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CEO}$	Collector-Emitter Voltage	45	V
$V_{CES}$	Collector-Base Voltage	45	V
$V_{EBO}$	Emitter-Base Voltage	5.0	V
$I_C$	Collector Current - Continuous	500	mA
$T_J, T_{stg}$	Operating and Storage Junction Temperature Range	-55 to +150	°C

\*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

**NOTES:**

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

#### Thermal Characteristics TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		BCX79	
$P_D$	Total Device Dissipation Derate above 25°C	625	mW
		5.0	mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W

## PNP General Purpose Amplifier (continued)

BCX79

### Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
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#### OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10 \text{ mA}, I_B = 0$	45		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 1.0 \text{ } \mu\text{A}, I_C = 0$	5.0		V
$I_{CEX}$	Collector Cutoff Current	$V_{CE} = 45 \text{ V}, V_{BE} = 0.2 \text{ V}, T_A = +100 \text{ }^\circ\text{C}$		20	$\mu\text{A}$
$I_{CES}$	Collector Cutoff Current	$V_{CE} = 45 \text{ V}, I_E = 0, V_{CE} = 45 \text{ V}, I_E = 0, T_A = +125 \text{ }^\circ\text{C}$		10 2.5	nA $\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 4.0 \text{ V}, I_C = 0$		20	nA

#### ON CHARACTERISTICS

$h_{FE}$	DC Current Gain	$V_{CE} = 5.0 \text{ V}, I_C = 2.0 \text{ mA}$ $V_{CE} = 1.0 \text{ V}, I_C = 10 \text{ mA}$ $V_{CE} = 1.0 \text{ V}, I_C = 100 \text{ mA}$	120 80 40	630 1,000	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 100 \text{ mA}, I_B = 2.5 \text{ mA}$		0.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 100 \text{ mA}, I_B = 2.5 \text{ mA}$		1.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = 5.0 \text{ V}, I_C = 2.0 \text{ mA}$ $V_{CE} = 1.0 \text{ V}, I_C = 100 \text{ mA}$	0.6	0.7 0.9	V

#### SMALL SIGNAL CHARACTERISTICS

$C_{cb}$	Collector-Base Capacitance	$V_{CB} = 10 \text{ V}, f = 1.0 \text{ MHz}$		4.5	pF
$C_{eb}$	Emitter-Base Capacitance	$V_{EB} = 0.5 \text{ V}, f = 1.0 \text{ MHz}$		15	pF
$h_{ie}$	Input Impedance	$I_C = 2.0 \text{ mA}, V_{CE} = 5.0 \text{ V}, f = 1.0 \text{ kHz}$	1.6	8.5	k $\Omega$
$h_{oe}$	Output Admittance	$I_C = 2.0 \text{ mA}, V_{CE} = 5.0 \text{ V}, f = 1.0 \text{ kHz}$		100	$\mu\text{mhos}$
NF	Noise Figure	$V_{CE} = 5.0 \text{ V}, I_C = 0.2 \text{ mA}, R_S = 2.0 \text{ k}\Omega, f = 1.0 \text{ kHz}$		6.0	dB

#### SWITCHING CHARACTERISTICS

$t_{on}$	Turn-on Time	$V_{CC} = 10 \text{ V}, I_C = 10 \text{ mA}, V_{BB} = 3.6 \text{ V}, I_{B1} = I_{B2} = 1.0 \text{ mA}$		150	ns
$t_{on}$	Turn-on Time	$V_{CC} = 10 \text{ V}, I_C = 100 \text{ mA}, V_{BB} = 5.0 \text{ V}, I_{B1} = I_{B2} = 10 \text{ mA}$		150	ns
$t_{off}$	Turn-off Time	$V_{CC} = 10 \text{ V}, I_C = 10 \text{ mA}, V_{BB} = 3.6 \text{ V}, I_{B1} = I_{B2} = 1.0 \text{ mA}$		800	ns
$t_{off}$	Turn-off Time	$V_{CC} = 10 \text{ V}, I_C = 100 \text{ mA}, V_{BB} = 5.0 \text{ V}, I_{B1} = I_{B2} = 10 \text{ mA}$		800	ns